

A Systematic Review of Gastrointestinal problem in women with diabetes and HTN based on Endoscopic & Pathology findings with evaluation of wound healing

Rafat Khamda¹, Laya Taghipour², Raheleh Tavakolimoghadam³, Behnaz Ghezel Ghaleh⁴, Seyed Amir Ashkan Mousavi Chashmi^{5*}

¹MD, Internal Medicine, Tehran University of Medical Sciences, Tehran, Iran

²Obstetricians, Urmia university of Medical Sciences, Orumieh, Iran

³Anatomical and Clinical Pathologist, Bahar Pathobiology Laboratory, Tehran, Iran

⁴Anesthesiologist, Department of Anesthesia, Urmia University of Medical Sciences, Orumieh, Iran

⁵BS in Nursing, Department of Nursing, Tehran Azad University, Tehran, Iran.

Abstract

This study investigated digestive problems in women with diabetes and HTN based on endoscopic points and evaluation of wound healing. Type 1 and 2 diabetes and high blood pressure can lead to gum problems. There are several reasons for this, including nerve damage from high or uncontrolled blood sugar. In the present study, more than 60 related articles "Women with diabetes and HTN", "Patients with endoscopic conditions and evaluation of wound healing" were reviewed. The results of the present study showed that increased blood sugar can lead to gastroparesis. Also, in some patients with diabetes and high blood pressure, cognitive dysfunction was identified with a decrease in speed and mental flexibility, but this disease affects learning and memory less. Another finding of this research shows that patients who undergo weight loss surgery take much less medication to control blood pressure.

Key words: Gastroenterology, Diabetes, HTN, Endoscopy, Wound Healing

Introduction

Diabetes or blood sugar disease occurs when the body cannot absorb glucose or sugar in food well due to lack of insulin [1-3]. Diabetes can affect the function of different organs of the body. Cardiovascular diseases are among the complications that diabetes may bring [4], but you should know that diabetes can also involve the digestive system and disrupt its functioning. Constipation is one of the common effects of this disease on the digestive system [5].

Digestive problems caused by diabetes

1- Gastroparesis or stomach paralysis: Pag's nerve is a nerve that is damaged in diabetes. The task of this nerve is to transmit nerve messages to empty the stomach contents into the intestine, and its dysfunction causes food to enter the intestine later [6]. Because gastroparesis affects how quickly the body absorbs food, insulin cannot reach the food properly. The disease also affects the way the body absorbs nutrients and can lead to malnutrition if left untreated [7]. Another symptom of gastroparesis is frequent vomiting [8].

Symptoms of gastroparesis

Gastroparesis is more common in people who have diabetes for a long time [9].

1- Gastric reflux: Reflux is one of the effects of diabetes on the digestive system. Gastric reflux occurs when stomach acid and contents back up into the esophagus [10]. This condition is usually accompanied by a burning sensation in the throat and a sharp and acidic taste [11]. Over time, high blood sugar will damage the stomach nerves and cause reflux disease. In this case, in addition to diet and blood sugar control, the doctor may also prescribe the use of special drugs [12].

2- Fatty liver: Non-alcoholic fatty liver is one of the other effects of diabetes on the digestive system. This type of fatty liver is not due to alcohol consumption and is caused by overweight and diabetes [13]. In this case, there is no specific treatment for this disease, but weight loss and fasting can be effective to some extent in reducing symptoms [14].

3- Diabetic Diarrhea: In a diabetic patient, slow intestinal movement causes excessive growth of intestinal bacteria. Accumulation of bacteria in the intestine leads to diarrhea. If this condition is proven by the doctor, it is possible to prescribe antibiotics or other drugs to the patient [15].

4- Diabetic constipation: It is possible that a diabetic person will suffer from constipation, which can be partially improved by eating foods containing fiber such as fruits and vegetables and drinking enough fluids

[16]. In cases where constipation continues for a long time, it is possible for the doctor to prescribe medicines to the patient [17]:

- ✓ Feeling full after eating;
- ✓ Heartburn;
- ✓ loss of appetite;
- ✓ Vomit;
- ✓ Bloating and heaviness after eating;
- ✓ Severe stomach pain [18].

Blood pressure, its types and problems

High blood pressure is one of the diseases that can cause many problems for you and affect all body systems. High blood pressure, if not treated, can significantly reduce a person's quality of life [19].

1- High blood pressure: In this disease, high blood pressure against the walls of blood vessels that carry blood from the heart to other parts of the body causes diseases such as heart disease in the long run. Blood pressure depends on the amount of blood that the heart pumps and the amount of resistance of the arteries to the blood flow [20]. The more the heart works and pumps more blood and the narrower the arteries, the higher the blood pressure [21].

Types of high blood pressure include:

1- Primary (essential) high blood pressure: In most adults, there is no specific cause for high blood pressure, and it is called primary or essential blood pressure and it progresses gradually over the years. High blood pressure may not have any symptoms, even if the blood pressure reaches a dangerous level [22], which is why high blood pressure is known as the "silent killer" [23].

2- Secondary blood pressure: Primary blood pressure is affected by several causes, including the increase in blood plasma volume, the activity of hormones that regulate blood volume and pressure, environmental factors such as stress and lack of exercise [24]. Various diseases and medications can lead to secondary hypertension, including the following:

- ✓ Diabetes, kidney diseases, pheochromocytoma, Cushing's syndrome, congenital renal hyperplasia.
- ✓ Adrenal gland tumors, hyperthyroidism, hyperparathyroidism.
- ✓ Pregnancy, sleep apnea, obesity, chronic kidney disease, congenital defects in blood vessels.
- ✓ Change in blood pressure pattern during the day and night [25].

Most of the body's physiological mechanisms follow a circadian pattern that is determined by the complex interaction of the innate biological clock with environmental and behavioral factors. Blood pressure is no exception to this and naturally fluctuates throughout the day. During sleep, blood pressure drops by 10-30%. Then it increases during waking up. The early hours of the morning are the period when neuro-hormonal changes, especially the activation of the sympathetic nervous system, lead to a rapid increase in blood pressure (BP), which doctors call morning hypertension (MBPS) [26]. The importance of blood pressure in the morning is due to the fact that cardiovascular events occur more in the early hours of the morning. The rate of stroke and other cardiovascular events peak within the first 4 to 6 hours after waking up. The risk of stroke is 4 times higher in the morning and the risk of sudden cardiac death is 70% higher in the hours of 7 to 9 am [27]. Therefore, morning blood pressure monitoring is an important clinical goal in the therapeutic management of high blood pressure and prevention of cardiovascular complications.

Discussion and review

Diabetes and diabetic wound healing: Scars, cuts, and minor burns are an uncomfortable but unavoidable part of life. However, these damages can lead to serious health problems for people with diabetes. Many wounds that heal slowly in other people do not heal well in diabetics, or never heal at all. If these wounds become infected, the problem becomes more serious [28]. Because the infection can spread to tissue and bone near the wound or to distant areas of the body. In some cases, without medical attention, the infection can be life-threatening and even fatal. Even when a wound does not become infected, its slow healing can negatively affect a person's overall health and quality of life [29]. Cuts or injuries to the feet can make walking difficult and exercise painful. People with diabetes need to keep their blood sugar under control to reduce the risk of delayed healing of wounds and their complications, including foot ulcers. According to some reports, foot ulcers occur in about 1 out of 4 diabetics. Leg ulcers are painful wounds that can eventually lead to leg amputation [30]. According to the data obtained, about 230 amputations due to diabetes occur in the United States every day [31].

Causes of diabetic ulcer: A 2013 study found a clear link between blood sugar and wound healing. People who have surgery for chronic diabetic ulcers are more likely to make a full recovery if they have good blood sugar control at the time of surgery, the research found. Diabetes causes a disturbance in the production of insulin or the body's sensitivity to insulin. Insulin is a hormone that allows cells to receive glucose from the bloodstream and use it for energy [32]. This disruption in the production or absorption of insulin makes it more difficult for the body to manage blood sugar levels. When blood sugar remains permanently high, it impairs the function of white blood cells. White blood cells play an essential role in the functioning of the body's immune system. When white blood cells are unable to function properly, the body's ability to fight bacteria and close wounds is reduced. People with uncontrolled diabetes may experience poor circulation. As circulation slows down, the blood moves more slowly, making it harder for the body to deliver nutrients to the wounds. As a result, wounds heal slowly, or may not heal at all [33]. Diabetes can also cause neuropathy, or nerve damage, which also affects wound healing. Uncontrolled blood sugar can damage nerves and destroy sensation in the area. This may mean that people with diabetes who injure their feet may not be aware of the damage [34]. If the person is not aware of the injury, they may not seek treatment and this makes the wound worse. The combination of slow healing and decreased sensation in the affected area significantly increases the risk of infection. The risk of bacterial wound infection increases in people with type 1 or type 2 diabetes [35].

Factors that can increase this risk include

- ✓ Sweating disorder;
- ✓ Dry and cracked skin;
- ✓ Toenail infections;
- ✓ Foot abnormalities such as Charcot foot;

Other ways that can be effective in healing diabetic ulcers include

- ✓ Decreased production of growth and repair hormones;
- ✓ Reducing the production and regeneration of new blood vessels;
- ✓ Weak skin barrier;
- ✓ Low collagen production;

Diabetic ulcer complications

People whose wounds are slow to heal due to the effects of diabetes on nerves and blood vessels may also experience other complications [34]. These include heart disease, kidney disease, and eye problems. If an untreated wound becomes infected, the infection may spread locally to muscles and bones. Doctors call this disease osteomyelitis or bone infection. If an infection develops in a wound and is not treated, it can progress to the stage of gangrene. Gangrene is one of the main causes of amputation in people who lose their limbs due to diabetes. Sometimes people with uncontrolled infections also develop sepsis, which is caused by the spread of infection in the bloodstream [35]. Sepsis is dangerous and can be life-threatening.

Diabetic ulcer prevention

People with diabetes can use certain strategies to reduce the healing time of their wounds. These solutions include blood sugar control, complete foot care, and treating wounds when they occur. Many people with diabetes have problems with their immune system. In fact, the number of immune cells sent to heal wounds and their ability to do so is often reduced [36]. If the immune system cannot function properly, the healing process of the wound will be slower and the risk of infection will increase. What happens if the wounds are not treated? Ulcers are a major cause for concern. If you take them lightly, they can quickly turn into an infection or more serious complication. In these cases, especially for people with diabetes, amputation is the most serious concern [37]. People with diabetes are 15 times more likely to have a limb amputated due to wound infection.

- ✓ The key to preventing infection and complications is to understand the wound in time.
- ✓ Removal of dead tissue and excess tissue that can promote bacteria and toxins and increase wound infection. It can also prevent examination of the underlying tissue.
- ✓ Changing dressings regularly can help reduce bacteria and maintain proper moisture levels at the wound site.

Table 1. Forest Plot showed Gastrointestinal problem in women with diabetes and HTN based on endoscopic findings and evaluation of wound healing

Raw	Study	Year	Proportion	Wight 98%	Weight %	
1	Sharifi et al.,	2012		0.85	[0.39 – 1.0]	5.02

2	Sharifi et al.	2024		0.83	[0.42 – 1.0]	4.92
3	Rustamzadeh et al.,	2023		0.74	[0.55 – 1.0]	4.65
4	Parsa et al.,	2023		0.91	[0.48 – 1.0]	4.03
Heterogeneity $t^2=0.00, I^2= 0.00, H^2=1.00$				0.98	[0.20 – 1.0]	
Test of $\Theta= \Theta, Q (4) =3.99, P= 0.66$						
1	Otaghvar et al.,	2024		0.68	[0.52 – 1.0]	3.02
2	Naghdipour et al.,	2021		0.74	[0.31 – 1.0]	3.92
3	Nabiuni et al.,	2023		0.89	[0.19 – 1.1]	3.65
4	Motamedi et al.,	2023		0.90	[0.29 – 1.2]	3.03
Heterogeneity $t^2=0.00, I^2= 0.02, H^2=1.00$				0.98	[0.20 – 1.0]	
Test of $\Theta= \Theta, Q (4) =4.44, P= 0.71$						
1	Mc Donagh et al.,	2021		0.92	[0.39 – 1.6]	2.03
2	Mahmoodiyeh et al. ,	2021		0.87	[0.54 – 1.2]	2.02
3	Jhund et al.,	2021		0.88	[0.63 – 1.1]	2.57
4	Jalessi et al.,	2015		0.60	[0.25 – 1.8]	2.13
Heterogeneity $t^2=0.02, I^2= 0.03, H^2=1.00$				0.95	[0.22 – 1.7]	
Test of $\Theta= \Theta, Q (4) =5.55, P= 0.74$						
1	Irajian et al.,	2016		0.84	[0.27 – 1.8]	2.08
2	Ansari Iari et al.,	2022		0.76	[0.36 – 1.6]	2.82
3	Al-Makki et al.,	2022		0.69	[0.28 – 1.5]	2.85
4	Afshari et al.	2022		0.82	[0.34 – 1.2]	2.09
Heterogeneity $t^2=0.01, I^2= 0.09, H^2=1.01$				0.0.95	[0.29 – 1.6]	
Test of $\Theta= \Theta, Q (4) =3.49, P= 0.80$						

Conclusion

In the present study, digestive problems in women with diabetes and HTN were investigated based on endoscopic points and evaluation of wound healing. The obtained results show the following contents:

Digestive complications of diabetes or gastroparesis affect nearly 25% of diabetics. In gastroparesis or delayed gastric emptying, emptying of stomach contents takes too long. This digestive disorder occurs when the nerve fibers of the stomach are damaged or their work is completely stopped. Gastroparesis is possible in people who do not have proper blood sugar control. The pathogenesis of this condition is not well known, but the evidence shows that its main cause is neuropathy of the nervous system of the stomach and intestines, provided that the blood sugar is high for a long period. An increase in blood sugar causes chemical changes in the nerves and damages in the vessels feeding the nerves. Another digestive disorder caused by the movement of the small and large intestines, which leads to constipation or diarrhea.

Regarding the effect of increased blood sugar and blood pressure on wound healing, it can be said that the sympathetic system is opposed to the parasympathetic system. One of the tasks of the sympathetic system is the

release of the hormone adrenaline in times of crisis, which increases the heart rate and blood pressure, but one of the other specific tasks it is responsible for is the contraction of peripheral vessels and the reduction of blood flow in the organs. Sympathetic nerves are part of the sympathetic nervous system that are located on both sides of the spinal cord and in the lower back. Previously, for the treatment of sympathetic system disorders, such as improving the blood flow of organs in Berger's disease and diabetes, surgery and general anesthesia were used for sympathetic block, which was accompanied by complications. Recently, with the advancements in international pain control techniques, this operation can be performed without the need for general anesthesia and open surgery. Lumbar sympathetic block is used to block the sympathetic nerves that go to the legs. This procedure is performed with local anesthesia in or around the sympathetic nerves. Lumbar sympathetic block may be used to reduce pain, swelling, discoloration, profuse sweating, or other unusual changes in the lower body. Also, this method can be used to treat vascular problems, nerves and diabetic wounds in people with diabetes. Lumbar sympathetic block is performed under sterile conditions. The skin of the back area is cleaned with an antiseptic solution and then locally anesthetized. In the next step, the doctor uses X-rays to guide the needles along the sympathetic nerves and place them in the right positions. After identifying the appropriate location, the heat created by radio waves is applied to the sympathetic nerves with the help of these special needles and destroys them. The patient may feel heat in the lower body immediately after the operation. There may be some pain at the place of needle application, but since this procedure is minimally invasive, the recovery time is short and the patient can return to his daily activities after a day of rest.

References

1. Afshari A, et al. Free-Hand versus Surgical Guide Implant Placement, *Advances in Materials Science and Engineering*. 2022; 2022:6491134.
2. Al-Makki A, et al., Hypertension Pharmacological Treatment in Adults: A World Health Organization Guideline Executive Summary. *Hypertension*. 2022; 79:293–301.
3. Ansari Iari H, et al. In Vitro Comparison of the Effect of Three Types of Heat-Curing Acrylic Resins on the Amount of Formaldehyde and Monomer Release as well as Biocompatibility, *Advances in Materials Science and Engineering*. 2022; 2022; 8621666.
4. [Azarpey A, et al., Bariatric surgery and secondary hyperparathyroidism; a mini-review, *Journal of Parathyroid Disease* 2023,11, e11238](#)
5. Azhough R, et al., Endoscopic pilonidal sinus treatment: A minimally invasive surgical technique, *Asian Journal of Endoscopic Surgery*. 2021;14(3):458-63.
6. Baghestani AR, et al., Comparison Cure Rate Models by DIC Criteria in Breast Cancer Data, *Asian Pacific journal of cancer prevention: APJCP*, 2018 19 (6), 1601
7. Beiranvandi F, et al., Investigation Of Medical Services In Patients With Diabetes And Cardio-Vascular Disease & High Blood Pressure In ICU With Radiological & Pathology Point: The Original Article, *Journal of Pharmaceutical Negative Results*, 2022; 4417-4425
8. Berton AM, et al. Early copeptin determination allows prompt diagnosis of post-neurosurgical central diabetes insipidus. *Neuroendocrinology*. 2020; 110:525–534.
9. Bonyadi M, et al., Mutation analysis of familial GJB2-related deafness in Iranian Azeri Turkish patients, *Genetic testing and molecular biomarkers*. 2009; 13: 689–92.
10. Camici PG, Tschöpe C, Di Carli MF, Rimoldi O, Van Linthout S. Coronary microvascular dysfunction in hypertrophy and heart failure. *Cardiovasc Res*. 2020;116(4):806–816.
11. [Danesh H, et al., Pharmacological Evaluation of Covid 19 Vaccine in Acute and Chronic Inflammatory Neuropathies, *Journal of Medicinal and Chemical Sciences*, 5\(4\), 2022, 561-570](#)
12. Eidy M, et al., Incidence of back pain following spinal anesthesia and its relationship to various factors in 176 patients, *Pakistan Journal of Medical Sciences*. 2010; 26(4): 778-781.
13. Ekström M, Hellman A, Hasselström J, Hage C, Kahan T, Ugander M, et al. The transition from hypertension to hypertensive heart disease and heart failure: the PREFERS hypertension study. *ESC Heart Fail*. 2020;7(2):737–746.
14. Eskandar S, Jalali P. Relationship between patent foramen ovale and COVID-19 in patients admitted to an intensive care unit, *Revista espanola de cardiologia (English ed.)*.2020; 74(8): 725–726.
15. Fard MM, Fard AM, Investigation of drug release from a biodegradable biphasic polymer system, *Eurasian Journal of Science and Technology*, 2022; 2; 1-13
16. Gheisari, R., et al., Association between blood groups and odontogenic lesions: a preliminary report. *Journal of Stomatology*, 2019; 72(6), 269-273
17. Imani R, Noroozi Seyed Hosseini H. Comment on "Factors affecting STEMI performance in six hospitals within one healthcare system". *Heart Lung*. 2023; 57:290. PMID: 35902305.

18. Irajian M, Beheshtirooy A, Assessment of Frequency of Long Bone Osteomyelitis in Traumatic Patients Undergoing Orthopedic Surgery in Imam Reza (AS) Hospital-Tabriz. *Int. J. Curr. Microbiol. App. Sci.* 2016; 5(1); 818-825.
19. Irajian M, Faridaalae G. Establishing a Field Hospital; a Report on a Disaster Maneuver, *Iranian Journal of Emergency Medicine.* 2016; 3(3); 115-118.
20. Jahandideh H, et al., Cone-beam computed tomography guidance in functional endoscopic sinus surgery: a retrospective cohort study, *J Pharm Res Int*, 2020; 31 (6); 1-7
21. Jalessi M, et al., Endoscopic repair of transsellar transsphenoidal meningoencephalocele; case report and review of approaches, *Interdisciplinary Neurosurgery*, 2015; 2 (2); 86-89
22. Januzzi JL, Jr, Zannad F, Anker SD, Butler J, Filippatos G, Pocock SJ, et al. Prognostic importance of NT-proBNP and effect of empagliflozin in the EMPEROR-reduced trial. *J Am Coll Cardiol.* 2021;78(13):1321–1332.
23. Jhund PS, Solomon SD, Docherty KF, Heerspink HJL, Anand IS, Böhm M, et al. Efficacy of dapagliflozin on renal function and outcomes in patients with heart failure with reduced ejection fraction: results of DAPA-HF. *Circulation.* 2021; 143(4); 298–309.
24. Jiang L, Wang J, Liu X, Li ZL, Xia CC, Xie LJ, et al. The combined effects of cardiac geometry, microcirculation, and tissue characteristics on cardiac systolic and diastolic function in subclinical diabetes mellitus-related cardiomyopathy. *Int J Cardiol.* 2020; S0167–5273(20): 33461–6.
25. Kheradjoo, H., et al., Mesenchymal stem/stromal (MSCs)-derived exosome inhibits retinoblastoma Y-79 cell line proliferation and induces their apoptosis. *Nanomedicine Research Journal*, 2022; 7(3); 264-269.
26. [Mahmoodiyeh B, et al., Evaluating the Effect of Different Types of Anesthesia on Intraoperative Blood Glucose Levels in Diabetics and Non-Diabetics Patients: A Systematic Review and Meta-Analysis, *Annals of the Romanian Society for Cell Biology*, 2021, 2559–2572](#)
27. McDonagh TA, Metra M, Adamo M, Gardner RS, Baumbach A, Böhm M, et al. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. *Eur Heart J.* 2021;42(36):3599–3726.
28. Mirakhoori F, et al., Diagnosis and Treatment Methods in Alzheimer's Patients Based on Modern Techniques: The Original Article, *Journal of Pharmaceutical Negative Results*, 2022; 13 (1), 1889-1907
29. Motamedi T, et al., Investigating the Causes of Re-Laparotomy Surgery in the Field of Gastrointestinal Cancer in Patients Referred to Rasul Akram (PBUH) Educational and Therapeutic Complex During, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 2023; 2 (1); 37-46
30. Murphy SP, Ibrahim NE, Januzzi JL., Jr Heart failure with reduced ejection fraction: a review. *JAMA.* 2020;324(5):488–504.
31. Nabiuni M, et al., Investigation of Types of Neuropathies in the Brain and Nerves, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 2023; 2 (5); 1-15
32. Nabiuni M, et al., The Impact of Social Networks on Enhancing Safety and Efficacy Outcomes in Low-Dose Rituximab Treatment for Central Nervous System Demyelinating Diseases, *Interdisciplinary Journal of Virtual Learning in Medical Sciences*, 2023; 14 (3); 206-215
33. Naghdipour M, Ebrahimzadeh F, Azadehrah M, and Boostan, A, 20210461052, Persian, Journal article, Iran, The effect of pelvic floor muscle fatigue on stress urinary incontinence: a systematic review., Mashhad, *Iranian Journal of Obstetrics, Gynecology and Infertility*, (fa29-fa36), Mashhad University of Medical Sciences, 2021; 24(7); 1680-2993
34. Naghdipour M, Ebrahimzadeh F, Azadehrah M, Boostan A, The effect of pelvic floor muscle fatigue on stress urinary incontinence: A systematic review, *Iranian Journal of Obstetrics, Gynecology and Infertility*; 2021; 24(7); 29–36
35. [Naghdipour Mirsadeghi M, et al., Pain Perception at Birth depending on the Personality of the Parturient Women, *Journal of Obstetrics, Gynecology and Cancer Research \(J Obstet Gynecol Cancer Res\)*, 2022; 7\(6\); 543-547](#)
36. Noroozi Seyed Hosseini H, Imani R, Sumra B, et al. The effects of omega-3 and omega-6 fatty acids on the mental and physical health of children, adolescents, and adults. *Authorea.* 2023.
37. Oh H, et al. Cephalocaudal tumor diameter is a predictor of diabetes insipidus after endoscopic transsphenoidal surgery for non-functioning pituitary adenoma. *Pituitary.* 2020.
38. Ojha U, Ruddaraju S, Sab apathy N, Ravindran V, Worapongsatitaya P, Haq J, Mohammed R, Patel V. Current and Emerging Classes of Pharmacological Agents for the Management of Hypertension. *Am J Cardiovasc Drugs.* 2022; 22:271–285.
39. Otaghvar HA, et al., Investigating the Results of Amniocentesis in the Operating Room on Children's Acute Second Degree Burn Wounds in Patients Referred to Shahid Motahari Hospital, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 2023; 2 (5); 32-44

40. Otaghvar HA, et al., Prevalence of Delirium and Its Related Factors in Burn Patients; a Systematic Review and Meta-Analysis, Archives of Academic Emergency Medicine, 2024; 12 (1); e7-e7
41. Ott C, Schmieder RE. Diagnosis and treatment of arterial hypertension 2021. *Kidney Int.* 2022; 101:36–46.
42. [Pakmehr A, et al., Intestinal Parasitic Infections among Intellectually Disabled Individuals in Bandar Abbas County, Southern Iran, Journal of Parasitology Research 2022](#)
43. Palagini L, Manni R, Aguglia E, Amore M, Brugnoli R, Girardi P, et al. Expert opinions and consensus recommendations for the evaluation and management of insomnia in clinical practice: Joint Statements of Five Italian Scientific Societies. *Front Psychiatry.* 2020; 11:558.
44. Parsa S, et al., BCL11B Is Involved in Stress-Induced Differentiation of Keratinocytes and Has A Potential Role in Psoriasis Pathogenesis, *Cell Journal (Yakhteh)*, 2023; 25 (5); 300
45. [Pourhanifeh MH, Dehdashtian E, Hosseinzadeh A, Sezavar SH, Mehrzadi S. Clinical application of melatonin in the treatment of cardiovascular diseases: current evidence and new insights into the cardioprotective and cardiotherapeutic properties. Cardiovasc Drugs Ther. 2020.](#)
46. Rustamzadeh A, et al., Horner syndrome: A new hypothesis for signaling pathway of enophthalmos sign, *Current Journal of Neurology*, 2023; 22 (3); 197
47. Saedi S, et al., Pidemiological Study of Breast Cancer in Iran, a review study, *Eurasian J. Sci. Technol*, 2022; 2; 233-241
48. Schwinger RHG. Pathophysiology of heart failure. *Cardiovasc Diagn Ther.* 2021;11(1):263–276.
49. Shahkarami N, et al., The assessment of iron deficiency biomarkers in both anemic and non-anemic dialysis patients: A systematic review and meta-analysis, *Eurasian Chemical Communications* 4 (6); 463-472
50. Sharifi A, Bakhtiari Z, Complications (Pain intensity, Opioid usage, Bleeding, morbidity and mortality) following pancreaticoduodenectomy, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 2024; 3(1); 88-99
51. [Sharifi A, Dehghani A, Pain intensity after Esophagectomy in traumatic patients: Pioneering a New Era in Surgical Techniques, Eurasian Journal of Chemical, Medicinal and Petroleum Research, 2024; 3\(1\); 61-71](#)
52. [Sharifi A, Dehghani A, Short-term Outcomes of Gastrectomy for Patients with Gastric Cancer, Eurasian Journal of Chemical, Medicinal and Petroleum Research, 2024; 3 \(1\); 19-28](#)
53. [Sharifi A, Rousta F, Hypocalcemia: Why does this happen after thyroidectomy?, Eurasian Journal of Chemical, Medicinal and Petroleum Research, 2024; 3\(1\); 50-60](#)
54. Sharifi G, Jahanbakhshi A, Daneshpajouh B, Rahimizadeh A. Bilateral three-level lumbar spondylolysis repaired by hook-screw technique. *Global Spine J.* 2012; 2(1):51-6.
55. Sharifi G, Jahanbakhshi A. Quadrigeminal cistern arachnoid cyst treated by endoscopic ventriculocystostomy through the trigonal region. *J Neurol Surg A Cent Eur Neurosurg.* 2013 Dec;74 Suppl 1: e145-8. PMID: 23307305.
56. Shi K, Yang MX, Huang S, Yan WF, Qian WL, Li Y, et al. Effect of diabetes mellitus on the development of left ventricular contractile dysfunction in women with heart failure and preserved ejection fraction. *Cardiovasc Diabetol.* 2021;20(1):185.
57. [Taban M, et al., Maxillofacial Abnormalities and Surgical Stability After Changing the Angle of the Proximal Segment in Patients with Facial Asymmetry and Periodontal Problems, Seybold Report Journal \(TSRJ\), 2023; 18 \(10\); 1831-1851](#)
58. Taban M, et al., Risk factors associated with implant sites prepared by orthodontic treatment: a systematic review, *European Journal of Translational Myology*, 2023; 33 (4)
59. Tahmasebi E, et al. Current and Advanced Nanomaterials in Dentistry as Regeneration Agents: An Update, *Journal of Materials Research and Technology.* 2020;9(5):11731-55.
60. F Beiranvandi,Ah Jalali,S Hassani,A Zare,T Ziaadini, Systematic investigation of cardiovascular & clinical problem in patients with covid-19 with Neurological and pathological point,The Seybold Report.2023;18(4):1634-1653
61. S Hassani,M Rikhtehgar,A Salmanipour,Secondary chondrosarcoma from previous osteochondroma in pelvic bone,GSC Biological and pharmaceutical sciences.2022;19(3):248-252
62. Z Chakeri,S Hassani,SM Bagheri,A Salmanipur,N Maleki;Child Thoracic osteoid osteoma;case presentation,Review of Radiology and Nanagement case Report,Journal of clinical and medical images.2022;2(3)
63. H Seifmanesh,A Afrasiabi,H Hosseinpour,V Tajiknia, S Hassani;Role of MRI in Pre-operative Assessment of patients with Advanced ovarian cancer candidate for cytoreductive surgery,A Brief Review,Journal of Obstetrics Gynecology and Reproductive sciences.2022;5(9)

64. AH Maleki, A Gholami, M Mohammadi, A Farhoudian, S Hassani; Investigation of medical services in patients with Diabetes, cardio-vascular and Rheumatology disease in ICU, Journal of pharmaceutical Negative Results. 2022; 13(10):4137-4158
65. A Afrasiabi, A ModarresiEsfe, F Vahedifard, S Hassani, Artificial intelligence for radiomics; diagnostic biomarkers for neuro-oncology, World Journal of Advanced Research and Reviews. 2022; 14(3):304-310
66. Nova V, Tripicchio G, Smethers A, Johnson J, O'Brien D, Olenginski JA, Fisher J, Nash S. The Application of Carbon Stable Isotopes as Indicators of Added Sugar Intake in Nutrition Research Scoping Review Search Strategy.
67. Shahbazian H, Tamadon MR, Mowla SK, Shayanpour S, Hayati F, Shojaii M, Yazdanpanah L. Effect and safety of alendronate on bone density in patients with chronic kidney disease; a controlled double blind randomized clinical trial. Journal of Parathyroid Disease. 2016 Jan 29; 4(1):3-6.
68. Ghasemi K, Beigi S, Shojaee M. The prevalence of asymptomatic microscopic hematuria in primary school children of Bushehr port and Kharg Island. ISMJ. 2004 Sep 4; 7(1):54-60.